

The Value of Connectivity at the Heart of Smart Homes and Buildings >

Creating the home or office of the future requires creating a people-centric environment that seamlessly connects its occupants to the building. The confluence of artificial intelligence (AI), the internet of things (IoT), 5G and ambient technologies presents new data points for smart home designers and building managers to connect in order to bring about an enhanced occupant experience. The power of connectivity can optimize the power of these new technologies, as well as the products that they spawn.

BUSINESS CHALLENGE

Smart building technologies that will help designers and developers save time and money on efficient energy management while ensuring property users are happy, safe and comfortable depend on the environments to intelligently adapt and respond to people's needs. The ambient computing* and intelligence** that enable smart building capabilities and services rely on underlying antenna solutions that support a number of wireless protocols over a wide spectrum while demonstrating performance reliability and operational agility. The cost of eventually having to upgrade devices that currently use stand-alone antennas to accommodate new technologies would be significant, especially when tuning and integration needs are taken into account.



Therefore, smart home and building device makers are increasingly turning to combo antenna solutions to address spectrum coverage and cost-efficiency needs. Examples of these devices include room lighting activated with a person's physical presence or voice, smart security cameras that stream live footage of any part of the building to a mobile phone via an app, surveillance cameras for home safety, sensor-based touch panels, video doorbells, and more. As the list grows, the onus on the connecting antennas and apps that enable these devices to "talk" will be heavy.

*Ambient computing consists of technologies embedded in the occupant's surroundings that combine hardware, software, user experience, and machine or human interaction and learning to execute instructions. This is done through either a computer or an internet-enabled device without the need for a user's direct command. The user interacts with his or her surroundings and the devices respond to those actions.

**Ambient intelligence refers to applications characterized by systems and technologies that are embedded, networked, context-aware, personalized, adaptive and anticipatory. Built upon concepts of pervasive and ubiquitous computing, profiling, context awareness and human-centric computer interaction designs, ambient intelligence activates smart devices to work in concert to help people carry out their required tasks and activities whether in the home or in a building workspace.

SOLUTIONS

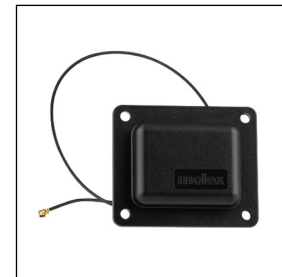
Molex offers a wide range of external antenna solutions that provide flexibility for the future—whether in the home or in a digitally transformed workspace. These connectivity solutions are aimed at supporting networked solutions and data services in intelligent buildings and are ready to use for Bluetooth; Wi-Fi; GNSS; industrial, scientific and medical/dedicated short-range communications (ISM/DSRC), including MIMO and LoRA; cellular (LTE/5G); and other applications.

THE MOLEX ADVANTAGE

The Series 215868 On-metal, Dual-band, Wi-Fi/Bluetooth External Antenna is a popular choice of wireless system integrators as well as smart home appliance and security/surveillance camera manufacturers, to name a few.

By integrating two complete Wi-Fi subsystems (2.4-GHz Wi-Fi and 5-GHz 802.11ac Wi-Fi) with Bluetooth connectivity into a single solution, this antenna enables two unique data streams to run at full throughput simultaneously, maximizing the leverage of each of the two complementary technologies.

ON-METAL, DUAL-BAND, WI-FI/BLUETOOTH EXTERNAL ANTENNA	FEATURES AND ADVANTAGES	APPLICATIONS
	<p>Small form factor design provides space savings</p> <p>Metal surface mount allows mounting directly onto the metal surface without compromising RF performance</p> <p>Backside adhesive and screw mounting options enable instant and easy application anywhere on the device</p> <p>Ultra-miniature coaxial connector allows connector and cable length adjustments</p> <p>Versatility extends beyond smart homes and buildings to include networked cars and telecom or networking infrastructure</p>	<p>Connected/Smart Homes Security and surveillance Home automation Home streaming Entertainment Smart appliances Energy and utilities</p> <p>IoT Wireless solutions Smart home/factory/city IoT and IT infrastructure</p> <p>Telecommunications/Networking Infrastructure</p> <p>Commercial Vehicles Networking</p>



A solution that is much sought after by developers leveraging the power of 5G MIMO, Wi-Fi MIMO and GPS connectivity is the Series 216589 Multi-Hub Combo External Antenna. This antenna features 2 x 5G, 2 x Wi-Fi and 1 x GPS functionalities with an IP67 rating, providing easy mounting in a low-profile design, making it suitable for use in and between cars and smart homes and buildings.

MULTI-HUB COMBO 5-IN-1 ANTENNA (5G MIMO/WI-FI MIMO/GPS)	FEATURES AND ADVANTAGES	APPLICATIONS
	<p>5-in-1 antenna with built-in cellular (LTE, 5G), MIMO *2, Wi-Fi (tri-band) *2 and GPS features make it ideal for advanced applications</p> <p>Metal surface mount allows mounting directly onto the metal surface without compromising RF performance</p> <p>Adhesive on back of hub enables quick and easy application anywhere externally on the device externally</p> <p>SMA connector on the cable end facilitates adjustable cable length and connectivity to FAKRA</p> <p>Versatility extends beyond smart homes and buildings to include smart cars and network infrastructures</p>	<p>Connected/Smart Homes Smart Buildings Smart home/factory/building</p> <p>IoT IoT and IT infrastructure Advanced IoT applications</p> <p>Telecommunications Networking infrastructure</p> <p>Commercial Vehicles Smart vehicles Networking T-boxes Specialty vehicles</p> <p>Applicable Industry Standards IP67 RoHS</p>



To learn more, visit www.molex.com/molex/products/group/antenna